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CONGEN HASHDC. SUS HASHDC.V CIA/wi/widrc 79-6055

[redacted]

WEAPONS INTELLIGENCE DAILY REVIEW NO 0055/79

19 MARCH 1979

3. PRC HAS PROBLEMS WITH LIQUID HYDROGEN FOR SPACE LAUNCH PROGRAMS [redacted] THE CHINESE HAVE HAD AN ACTIVE PROGRAM FOR DEVELOPMENT OF HIGH-ENERGY CRYOGENIC FUELS FOR SPACE APPLICATION FOR AT LEAST 3-4 YEARS. FURTHER, THEY [redacted] HAVE HAD MAJOR PROBLEMS IN THE HANDLING OF LIQUID HYDROGEN FOR THEIR UPPER STAGE SPACE LAUNCH VEHICLE PROGRAM. [redacted] THERE WAS AN EXPLOSION INVOLVING LIQUID HYDROGEN THAT KILLED SEVERAL IMPORTANT PEOPLE THREE OR FOUR YEARS AGO AT AN UNDISCLOSED LOCATION. THE CHINESE ASKED SPECIFIC QUESTIONS ABOUT US PRACTICES IN HANDLING CRYOGENIC

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FUELS SUCH AS HOW TO VENT THEM, HOW TO CALCULATE HOW MUCH BOILS OFF, HOW TO MANAGE THE TOPPING-OFF PROCESS PRIOR TO LAUNCH, HOW TO DETECT LEAKS, AND HOW TO DISPERSE BOIL-OFF. [redacted]

[redacted] THE THIRD STAGE OF THE PRC'S INDIGENOUS COMMUNICATIONS SATELLITE LAUNCH VEHICLE WOULD USE LIQUID OXYGEN/LIQUID HYDROGEN PROPELLANTS. THE LOCATION OF THIS WORK HAS NOT BEEN IDENTIFIED, BUT THE MOST LOGICAL ORGANIZATION TO DO IT IS THE 3RD RESEARCH ACADEMY OF THE 7TH MINISTRY OF MACHINE BUILDING. THIS ACADEMY IS LOCATED AT CHANGXINDIAN (CH'ANG-HSIN-TIEN) IN THE SOUTHWEST SUBURBS OF BEIJING (PEKING). IT IS RESPONSIBLE FOR R&D OF LIQUID ROCKET PROPULSION FOR STRATEGIC MISSILES AND SPACE LAUNCH VEHICLES. A

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THE CHINESE PROBLEMS WITH LIQUID HYDROGEN FOR SPACE APPLICATION IS ONLY ONE OF A NUMBER OF PROBLEM AREAS THAT THEY HAVE ENCOUNTERED IN DEVELOPING THEIR OWN COMMUNICATIONS SATELLITE. THESE PROBLEMS HAVE UNDOUBTEDLY BEEN A FACTOR IN ATTEMPTS TO OBTAIN US TECHNOLOGY. THE CHINESE STILL CLAIM THAT THEY WILL LAUNCH THEIR OWN SATELLITE IN 1980-81 BUT WE FEEL THAT THEIR PROGRAM WILL LIKELY ENCOUNTER ADDITIONAL SLIPPAGE. [redacted]

[redacted]

2. CHINA TO LAUNCH SCIENTIFIC SATELLITE IN 1979. [redacted]

[redacted]

[redacted] THE PRC INTENDS TO LAUNCH A SCIENTIFIC EXPLORATION SATELLITE IN 1979. IT WILL WEIGH 250 KILOGRAMS, BE SPIN STABILIZED IN NEAR EARTH ELLIPTICAL ORBIT, AND WILL MEASURE SOLAR AND TERRESTRIAL RADIATION AND ATMOSPHERIC PARAMETERS. IF THE PROPOSED SATELLITE CARRIES OUT THE FUNCTIONS [redacted] IT

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WILL BE THE FIRST TRULY SCIENTIFIC SATELLITE ORBITED BY THE PRC. ALTHOUGH CCD1 AND CCD2, LAUNCHED FROM SHUANGCHENGZI (SHUANG-CHENG-TZU) IN 1970 AND 1971, HAVE BEEN CALLED SCIENTIFIC SATELLITES BY THE CHINESE, THEY PROBABLY DID NOT PERFORM ANY SIGNIFICANT SCIENTIFIC FUNCTIONS. THE SIX SATELLITES ORBITED BY THE PRC SINCE THEN HAVE ALL BEEN DEVELOPMENTAL MILITARY RECONNAISSANCE SPACECRAFTS. WITH THE EXCEPTION OF CCD2, NONE OF THE CHINESE SATELLITES HAVE HAD FACILITIES FOR LONG LIFE. CCD2 HAS A RELATIVELY UNSOPHISTICATED SPACECRAFT REQUIRING VERY LITTLE POWER. IT WAS EQUIPPED WITH SOME BODY MOUNTED SOLAR CELLS. IN ORDER TO DEVELOP LONGER-LIVED SATELLITES, SUCH AS THEIR NEXT GENERATION OF RECONNAISSANCE SATELLITES, AND PROPOSED COMMUNICATIONS SATELLITES, THE CHINESE ARE GOING TO HAVE TO EXPEND FURTHER EFFORT DEVELOPING AND TESTING LONG LIFE SUPPORT FEATURES. THEREFORE, IN ADDITION TO PERFORMING THE FUNCTIONS [redacted] THE SCIENTIFIC SATELLITE MAY ALSO SERVE AS A TESTBED FOR DEVELOPMENT OF

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[redacted] LIFE SATELLITE HOUSEKEEPING SYSTEMS. [redacted]

T-E LAUNCH OF THE SCIENTIFIC SATELLITE PROBABLY WILL TAKE PLACE AT [redacted] THE SHUANGCHENGZI MISSILE TEST CENTER WHERE ALL PRC SPACE ASSOCIATED LAUNCHINGS HAVE OCCURRED TO DATE. THE CSL-2 SATELLITE LAUNCH VEHICLE, WHICH CAN BE LAUNCHED FROM BOTH [redacted] IS EASILY CAPABLE OF LAUNCHING THE PROPOSED SCIENTIFIC SATELLITE. IT PROBABLY WILL BE THE ONLY OPERATIONAL SPACE LAUNCH VEHICLE USED BY THE PRC DURING 1979, AND [redacted] PROBABLY WILL BE THE ONLY LOCATION IN CHINA EQUIPPED TO LAUNCH THE CSL-2 DURING THIS YEAR. [redacted]

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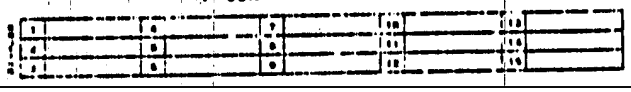

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